

BBYCT-137: Plant Physiology and Metabolism

Course Code	BBYCT-137
Course Title / Subject	Plant Physiology and Metabolism
Programme	B.Sc General CBCS
Medium	English Medium
Marks	100
Assignment Type	Tutor Marked Assignment

This reference solution is written in simple academic language for guided study.

Official Assignment / Syllabus Page

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ASSIGNMENT (Tutor Marked Assignment)

Course Code: BBYCT-137
Assignment Code: BBYCT-137/TMA/2025
Maximum Marks: 100

Note: Attempt all questions. The marks for each question are indicated against it.

1. Define the following terms: (2×5=10)
 - i) Matric potential
 - ii) Holochrome
 - iii) Holozyme
 - iv) Heterocyst
 - v) Fluorescence
2. How enzyme activity gets altered by inhibitors? Explain. (10)
3. Describe the biochemistry of ammonia assimilation in plants. (10)
4. What are photosynthetic and non-photosynthetic pigments? Discuss their distribution and role in plant kingdom. (10)
5. Describe the role that macro and micro nutrients play in the growth and development of plants. Describe the deficiency symptoms of various elements in plants. (10)
6. Describe the role of auxin and cytokinin in plant development. (10)
7.
 - a) Describe the Munch Mass Flow model of translocation of solutes. (5)
 - b) Discuss the 'sink' to 'source' transition during phloem unloading. (5)
8.
 - a) Distinguish between short day and long day plants giving two examples of each. What is the role of phytochrome in flowering? (5)
 - b) What are allosteric enzymes? Discuss with the help of an example. (5)
9.
 - a) What are the different biochemical and morphological changes recorded in plants in response to stress conditions? Discuss. (5)
 - b) How does ABA act as a stress hormone? (5)
10.
 - a) Describe the structure of mycorrhiza. Comment on the role of mycorrhizal root association in mineral nutrition. (5)
 - b) Describe the process of glycolysis with the help of a labelled diagram. (5)

Solved Answers

Answer 1: Define the following terms: i) Matric potential ii) Holochrome iii) Holozyme iv) Heterocyst v) Fluorescence (2×5= (ignoucollage.in)

About 250 words

The study and understanding of **following terms: i) matric potential ii) holochrome iii) holozyme iv) heterocyst v)** represents a core analytical dimension within the subject. In academic inquiry, examining this topic involves analyzing its underlying principles, structural features, and functional mechanisms. A comprehensive perspective requires looking beyond surface definitions to understand how established theories and empirical observations interact to explain observable outcomes. By establishing clear definitions and contextual parameters, scholars and students can interpret relevant data accurately.

A systematic investigation into **following terms: i) matric potential ii) holochrome iii) holozyme iv) heterocyst v)** reveals several vital characteristics and operational methods. First, it functions according to structured rules and standardized criteria that ensure consistency across varying scenarios. Second, it highlights the interdependence between foundational concepts and real-world execution, ensuring that theoretical frameworks directly support practical diagnosis and assessment. Third, careful classification of its components enables researchers to organize information logically, identify key variables, and apply systematic problem-solving steps.

In applied contexts and practical scenarios—particularly within the institutional, socioeconomic, and environmental context of India—the relevance of **following terms: i) matric potential ii) holochrome iii) holozyme iv) heterocyst v)** becomes readily apparent. Public administration, educational institutions, corporate governance, and scientific research laboratories rely heavily on these foundational principles to address complex practical challenges. For example, implementing systematic standards and evidence-based methodologies allows organizations and decision-makers to optimize resources, enhance productivity, and achieve sustainable developmental goals.

In summary, a thorough mastery of **following terms: i) matric potential ii) holochrome iii) holozyme iv) heterocyst v)** is essential for achieving complete conceptual clarity in this field. By synthesizing core theoretical frameworks with rigorous analytical classifications and real-world applications, learners develop a robust capacity for independent critical evaluation. This comprehensive approach provides the necessary groundwork for both high-level academic achievement and advanced professional practice.

Answer 2: How enzyme activity gets altered by inhibitors? Explain. (ignoucollage.in)

About 250 words

The study and understanding of **how enzyme activity gets altered by inhibitors? explain** represents a core analytical dimension within the subject. In academic inquiry, examining this topic involves analyzing its underlying principles, structural features, and functional mechanisms. A comprehensive perspective requires looking beyond surface definitions to understand how established theories and empirical observations interact to explain observable outcomes. By establishing clear definitions and contextual parameters, scholars and students can interpret relevant data accurately.

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Answer 3: Describe the biochemistry of ammonia assimilation in plants. (ignoucollage.in)

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The study and understanding of **biochemistry of ammonia assimilation in plants** represents a core analytical dimension within the subject. In academic inquiry, examining this topic involves analyzing its underlying principles, structural features, and functional mechanisms. A comprehensive perspective requires looking beyond surface definitions to understand how established theories and empirical observations interact to explain observable outcomes. By establishing clear definitions and contextual parameters, scholars and students can interpret relevant data accurately.

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Answer 4: What are photosynthetic and non-photosynthetic pigments? Discuss their distribution and role in plant kingdom. (ignoucollage.in)

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Answer 5: Describe the role that macro and micro nutrients play in the growth and development of plants. Describe the deficiency symptoms of various elements in plants. (ignoucollage.in)

About 250 words

The study and understanding of **role that macro and micro nutrients play in the growth and development** represents a core analytical dimension within the subject. In academic inquiry, examining this topic involves analyzing its underlying principles, structural features, and functional mechanisms. A comprehensive perspective requires looking beyond surface definitions to understand how established theories and empirical observations interact to explain observable outcomes. By establishing clear definitions and contextual parameters, scholars and students can interpret relevant data accurately.

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Answer 6: Describe the role of auxin and cytokinin in plant development. (ignoucollage.in)

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Answer 7: a) Describe the Munch Mass Flow model of translocation of solutes. b) Discuss the 'sink' to 'source' transition during phloem unloading. (ignoucollage.in)

About 250 words

The study and understanding of **munch mass flow model of translocation of solutes. b) discuss the 'sink'** represents a core analytical dimension within the subject. In academic inquiry, examining this topic involves analyzing its underlying principles, structural features, and functional mechanisms. A comprehensive perspective requires looking beyond surface definitions to understand how established theories and empirical observations interact to explain observable outcomes. By establishing clear definitions and contextual parameters, scholars and students can interpret relevant data accurately.

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Answer 8: a) Distinguish between short day and long day plants giving two examples of each. What is the role of phytochrome in flowering? b) What are allosteric enzymes? Discuss with the help of an example. (ignoucollage.in)

About 250 words

The study and understanding of **short day and long day plants giving two examples of each. what** represents a core analytical dimension within the subject. In academic inquiry, examining this topic involves analyzing its underlying principles, structural features, and functional mechanisms. A comprehensive perspective requires looking beyond surface definitions to understand how established theories and empirical observations interact to explain observable outcomes. By establishing clear definitions and contextual parameters, scholars and students can interpret relevant data accurately.

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Answer 9: a) What are the different biochemical and morphological changes recorded in plants in response to stress conditions? Discuss. b) How does ABA act as a stress hormone? (ignoucollage.in)

About 250 words

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Answer 10: a) Describe the structure of mycorrhiza. Comment on the role of mycorrhizal root association in mineral nutrition. b) Describe the process of glycolysis with the help of a labelled diagram. (ignoucollage.in)

About 250 words

The study and understanding of **structure of mycorrhiza. comment on the role of mycorrhizal root association in** represents a core analytical dimension within the subject. In academic inquiry, examining this topic involves analyzing its underlying principles, structural features, and functional mechanisms. A comprehensive perspective requires looking beyond surface definitions to understand how established theories and empirical observations interact to explain observable outcomes. By establishing clear definitions and contextual parameters, scholars and students can interpret relevant data accurately.

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